



## II. PROJECTS IN PROGRESS

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### SWING SPACE

#### BASEMENT/MEZZANINE

Basement/Mezzanine Segment 1

- DiLorenzo TRICARE Health Clinic
- Segment 2A2

Basement/Mezzanine Segment 2-3

#### WEDGES

Wedge 1

- Floors 1-5
- South Terrace

Wedges 2-5

- Floors 1-5

#### POWER/SITE

Replacement of Underground Water Lines  
Access Road Widening  
Chilled Water Line Feeders

#### ANCILLARY PROJECTS

Remote Delivery Facility (RDF)

Metro Entrance Facility (MEF)

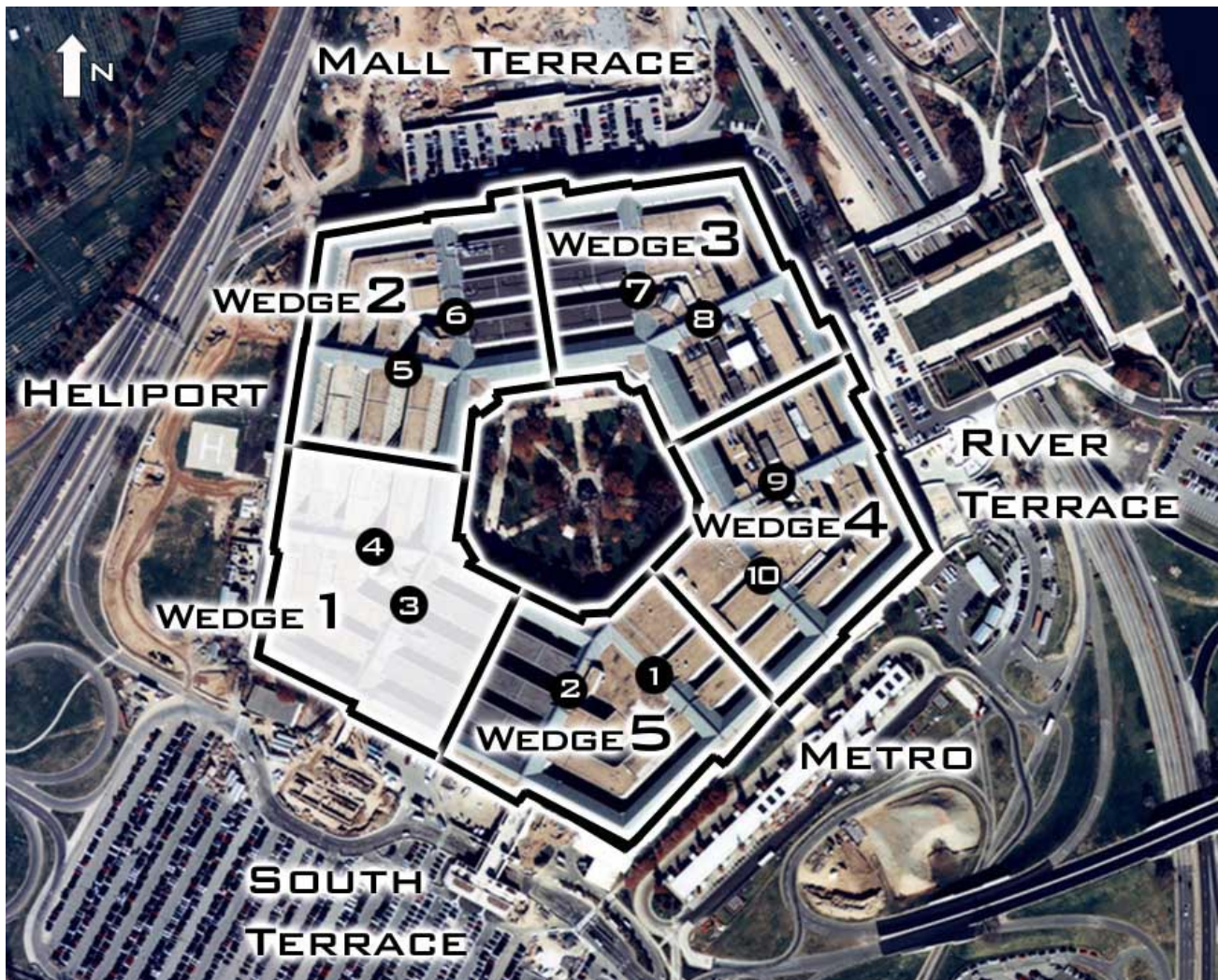
Heliport Firestation and Control Tower



## III. Projects in Progress

## Wedge 1 - Floors 1-5

*Aerial view of Wedge 1. The wedge encompasses 1,000,000 square feet of building space. Demolition and abatement of hazardous materials are now complete. New construction and tenant fit-out are ongoing.*



*Wedge 1 Locator*





### III. Projects in Progress

### Wedge1 - Floors 1-5

## WEDGE 1



### FLOORS 1-5

The five floors of Wedge 1 are accessed by the Pentagon's 3rd and 4th corridors.



#### MOVE-OUT

The 5,000 occupants of Wedge 1 moved out of the wedge between January 1, 1998, and December 31, 1998 into new quarters in several locations. Some moved to other areas of the Pentagon, but most were relocated to temporary leased space. Part of the relocation process involved design and modification of these leased spaces.

### WEDGE 1 HIGHLIGHTS

- 1,000,000 square feet of building space
- 1,500 new energy efficient windows
- 5,000 personnel relocated to swing space
- 15 million pounds of debris removed
- 4 million pounds of asbestos removed
- 70 percent of removed materials recycled
- New escalators and elevators
- New energy management control system
- New heating and cooling system
- New telecommunications infrastructure



#### TEMP MEP/COMM

This phase of the project included the separation of Wedge 1 from the rest of the building. To accomplish this task, mechanical, electrical, plumbing and communications systems had to be disconnected in Wedge 1 while ensuring that the rest of the building remained operational. A sound attenuating barrier wall was constructed to separate Wedge 1 from the two adjacent wedges (2 & 5). The barrier wall was mostly built in occupied spaces at night. The work was completed by the end of 1998.



*After all utilities have been rerouted, workers begin removal of old wires and conduits hidden within the walls of Wedge 1.*

## III. Projects in Progress

## Wedge 1 - Floors 1-5



*View inside of Wedge 1 where floor slabs have been removed to clear the way for a new escalator bank. New elevators in each wedge will also improve the vertical mobility of Pentagon personnel and make the building compliant with the Americans with Disabilities Act.*

**DEMO & ABATE**

Demolition and abatement of asbestos and lead was a massive project in itself. Work began as soon as the various tenants moved out. Once the areas were cleared of non-toxic rubbish, they were enclosed to prevent the escape of asbestos fibers and abatement was carried out by “moon-suited” workers under strict safety precautions. In all, 350 dumpsters of debris, 221 tractor-trailer loads of asbestos waste and 25 truck-loads of lead waste were removed. Items with salvage value were sold, with the proceeds reverting to the Government. Abatement was completed in September of 1999.

**CORE & SHELL**

In January 1999, the actual construction of the new space began. Much of the first year was devoted to completing necessary structural demolition and installation of additional pile foundations, underslab vaults, tunnels, piping, and other work which was out of sight, however, very necessary to the rest of the building. By fall 1999, much of the new structural steel was erected and installation of plumbing, heating, air conditioning, electrical, and communications in areas not affected by structural work was well underway. Column and partition framing followed the above-ceiling work, and drywall installation has begun in many of these areas on the upper floors. Window replacement is also well underway, with 80% of the new window units installed. The majority of the core and shell work will be done by late summer 2000.





### III. Projects in Progress

### Wedge 1 - Floors 1-5



#### TENANT FIT-OUT

Tenant fit-out design work is largely complete. This work will be done in phases with construction expected to start in March 2000 and completed approximately one year later.



*A skylight has been installed in an area built out between rings in Wedge 1 to accommodate a new cafeteria.*



#### INFORMATION MANAGEMENT & TELECOMMUNICATIONS (IM&T)

IM&T, from a construction standpoint, involves providing the necessary pathways for the communication cables. Since today's state-of-the-art communication technology changes so frequently, the installed communication pathways are designed to allow technology upgrades, without major changes to the initial pathways.

A Wedge 1 Above-Ground Telecommunications Backbone (ATB) Implementation Plan was received in June 1999. A Proof of Solution continues to be conducted.

The installation of the initial ATB as a part of the renovation of Wedge 1 has been started.

*The pitched roof of the 5th floor in Wedge 1. Electrical conduits have been installed.*



*The E-Ring in Wedge 1 is redefined with stud walls.*



*Steel beams now occupy an area where ramps once traversed all five floors in Wedge 1. The area will become office space.*



### III. Projects in Progress

### Wedge 1 - Floors 1-5



*Workers in Wedge 1 frame out a new utility trench.*



#### *FURNITURE, FIXTURES, & EQUIPMENT (FF&E)*

Most of the desks, chairs, carpet, etc., will be manufactured and shipped in accordance with the scheduled move-in dates.



#### *SECURITY*

Security has been incorporated in both design and construction.



*A welder in Wedge 1 secures a framing beam for a new escalator bank.*



*Workers in Wedge 1 install framework that will strengthen the walls around new blast-resistant windows.*





### III. Projects in Progress

### Wedge 1 - Floors 1-5



#### COMMISSIONING

The Commissioning process will occur throughout construction and is essential to having the space ready for move-in.

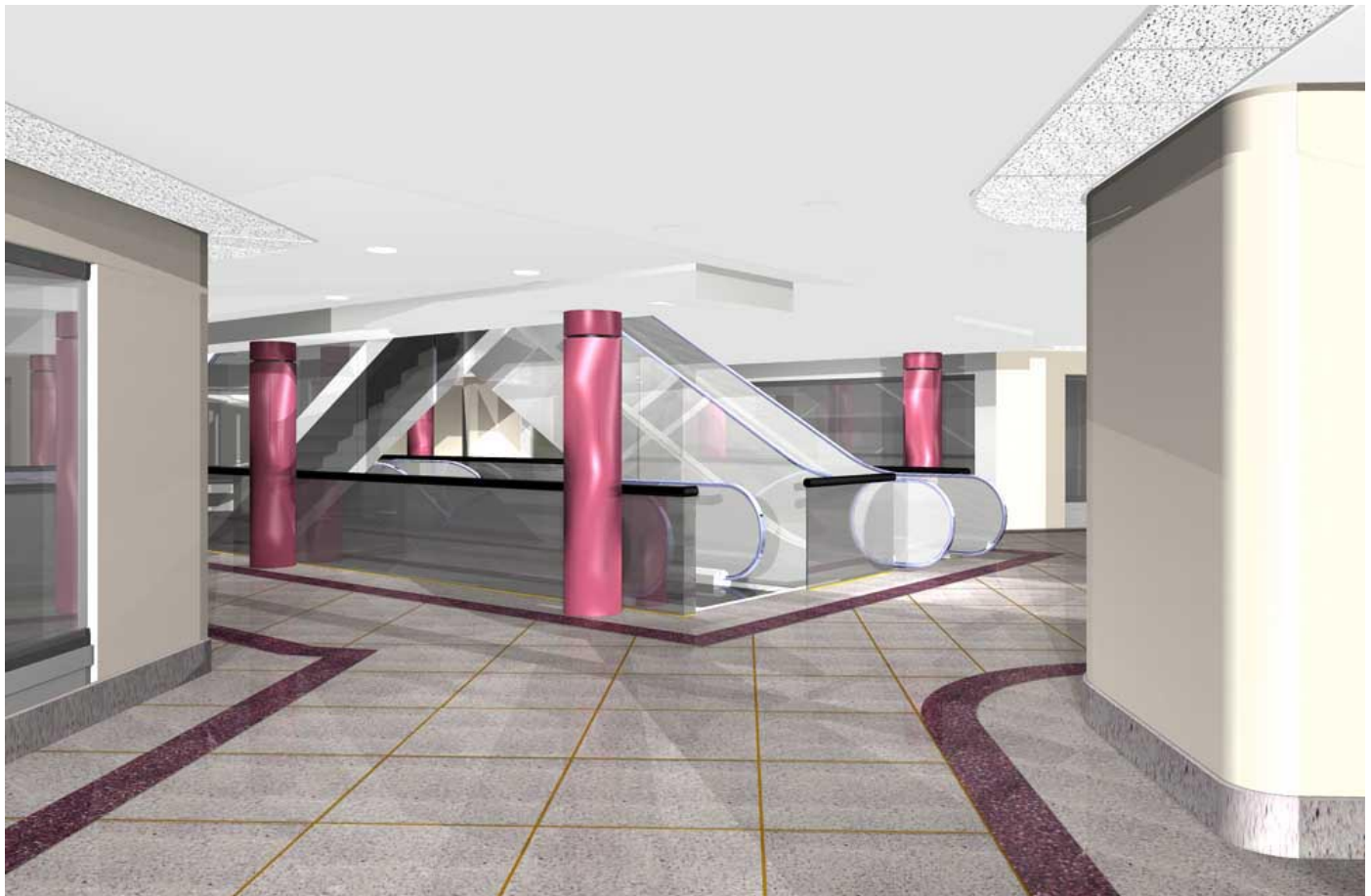


#### MOVE-IN

The culmination of the renovation of Wedge 1 is moving the new occupants into new office space. The new occupants, as currently planned, will be from Wedge 2. 5,000 people will be moved in phases, starting as early as the beginning of 2001 and ending around fall 2001.



*Proposed Wedge 1 corridor with integrated display cases.*



*A computer generated rendering of escalators in the A-ring of Wedge 1.*



## III. Projects in Progress

## Wedge 1 - South Terrace

*Aerial view taken in February 2000 of the South Terrace Pedestrian Bridge at Corridor 2 (right), the adjacent South Terrace loading dock and the South Terrace Pedestrian Bridge at Corridor 3 under construction.*



*South Terrace Locator*





### III. Projects in Progress

### Wedge 1 - South Terrace



#### SOUTH TERRACE

The South Terrace Pedestrian Bridges Project includes two pedestrian bridges over Rotary Drive, renovation of the loading dock, and connection to the 2nd Floor of the Pentagon at Corridors 2 and 3. The main purpose is to provide separation of vehicular and pedestrian access while easing traffic congestion along Rotary Drive. The first of the two bridges is now complete.

A five-phased construction plan was conceived for the South Terrace. Phases 1-3 included the Corridor 2 bridge and lobby entrance, new dockmaster offices, and the renovation of the Wedge 5 half of the existing South Terrace loading dock. Phases 1-3 were substantially completed by December 1999. Phases 4 and 5 include the bridge at the Corridor 3 building entrance and the bus stop wall connecting the two bridges, which also provides a visual and security barrier to the loading dock operation. Completion of the entire project is expected in fall 2000.



*South Terrace Bridge at Corridor 3 under construction in February 2000. The bridge will open concurrently with Wedge 1.*



*Formwork surrounds the truck bays of The South Terrace loading dock during renovation in June 1999.*



#### MOVE-OUT

The dockmaster moved from the Wedge 5 loading dock in late October 1998, and operated at the Wedge 1 side during renovation of the Wedge 5 side. Upon completion of the renovation of the Wedge 5 loading dock in December 1999, the dockmaster moved the loading dock operation from the Wedge 1 side into the new Wedge 5 side. Approximately 20 administrative and 50-80 dock personnel were involved in the relocation.



*The South Terrace loading dock as it appeared in February 2000. Eventually, all trucks will be diverted to a new Remote Delivery Facility being constructed north of the Mall Terrace.*

### III. Projects in Progress

### Wedge 1 - South Terrace



*Aerial view of The South Terrace loading dock in June 1999.*



*Pile work began for the South Terrace bridge at Corridor 3. The bridge will open concurrently with Wedge 1.*

*Workers construct the formwork that will give shape to the outer staircases of the Corridor 3 pedestrian bridge.*



#### *TEMP MEP/COMM*

Temporary utilities were provided to the Wedge 1 dock operation while the Wedge 5 side of the dock was being renovated. Permanent utilities have been installed and are in operation on the Wedge 5 side, while all existing utilities at the Wedge 1 loading dock have been cut. New permanent utilities should be completed at the Wedge 1 dock by July, 2000.



#### *DEMO & ABATE*

Work was completed at the Wedge 5 dock in March, 1999, and is currently in progress at the Wedge 1 dock side.



#### *CORE & SHELL*

The Wedge 5 loading dock was completed in September 1999. The Wedge 1 work has been deleted from the South Terrace contract.





### III. Projects in Progress

### Wedge 1 - South Terrace



#### *TENANT FIT-OUT*

Tenant fit-out in the Wedge 5 loading dock office areas was substantially completed during November, 1999.



#### *INFORMATION MANAGEMENT & TELECOMMUNICATIONS (IM&T)*

IM&T in the Wedge 5 loading dock office areas was substantially completed during November, 1999. The Wedge 1 scope of work will be deleted from the South Terrace contract and added to the Wedge 1 contract.



*Pentagon employees take advantage of the new pedestrian bridge at Corridor 2 to bypass three lanes of traffic on Rotary Road, which lies between the Pentagon and South Parking.*



*The outer facade of the Corridor 2 pedestrian bridge echoes the architectural style and color of the Pentagon. The final design was completed in concert with recommendations from the National Capital Planning Commission and other historical review agencies.*

### III. Projects in Progress

### Wedge 1 - South Terrace



*Workers install traction plates on the steps of the pedestrian bridge at Corridor 2.*



*FURNITURE, FIXTURES, & EQUIPMENT (FF&E)*

N/A



*SECURITY*

Pedestrian safety and building security were the main reasons for the construction of the pedestrian bridges. Security in the Wedge 5 perimeter areas was substantially completed during December, 1999. The Wedge 1 scope of work will be deleted from the South Terrace contract and added to the Wedge 1 contract.



*COMMISSIONING*

Wedge 5 office areas were substantially completed during December, 1999.

*A view of the pedestrian bridge at Corridor 2 from the Pentagon. South Parking can be seen at the top of the photo.*







### III. Projects in Progress

### Wedge 1 - South Terrace



#### MOVE-IN

The Dockmaster moved into the newly completed Wedge 5 side of the loading dock area from the Wedge 1 side in January 2000.

ADDITIONAL NOTE: Completion of the Corridor 3 pedestrian bridge is projected for July 2000 and will include completion of the reconfigured Rotary Road bus pick-up and drop-off lanes.

*A close aerial view of the pedestrian bridge at Corridor 2. Two elevators in the bridge provide access for persons with disabilities.*

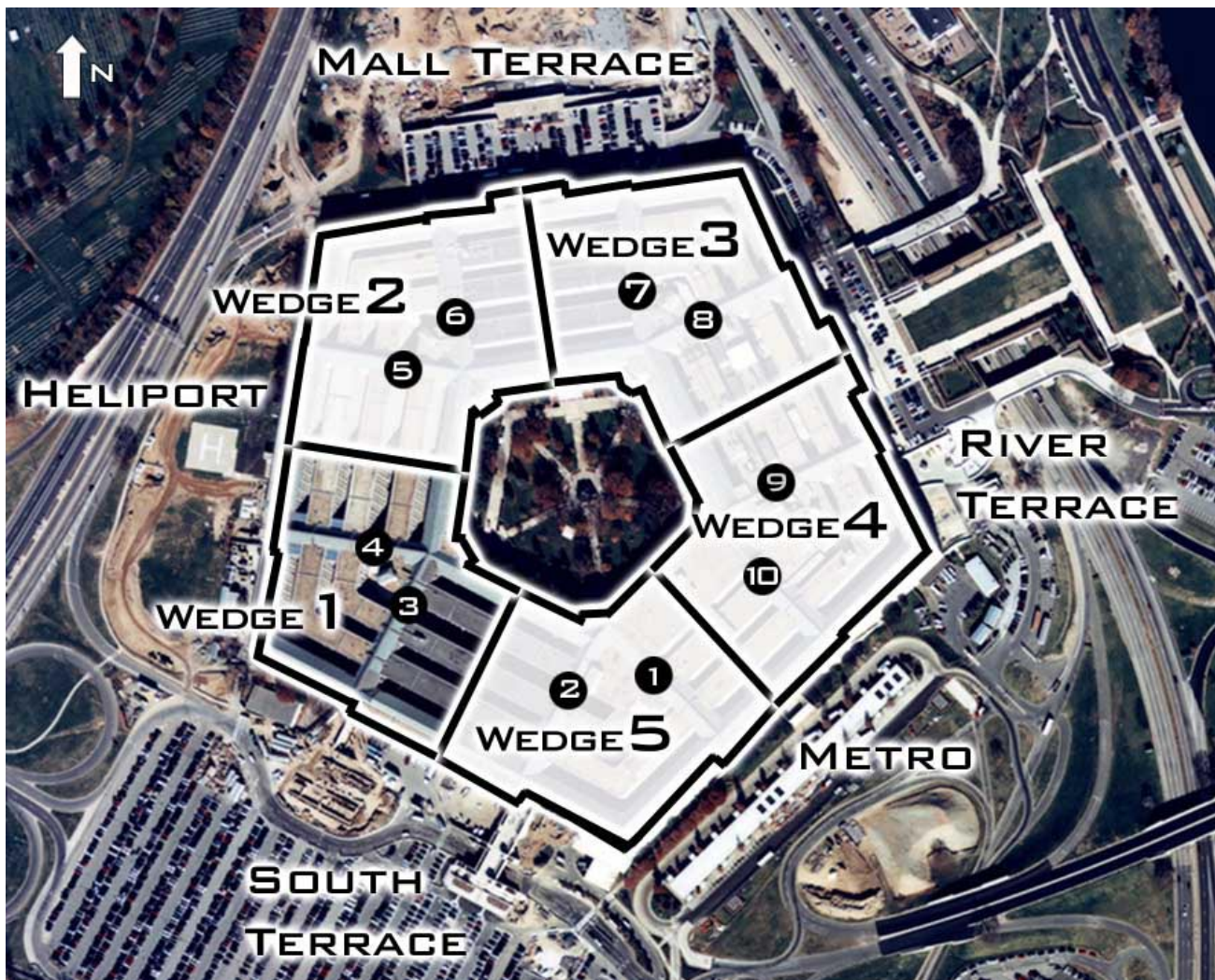




## III. Projects in Progress

## Wedges 2-5 - Floors 1-5

*Aerial view of the Pentagon at the corner of the Metro (left) and River Terrace (right) facades. The point marks the center of Wedge 4.*



*Wedges 2-5 Locator*





### III. Projects in Progress

### Wedges 2-5 - Floors 1-5

## WEDGES 2-5



### FLOORS 1-5

Wedges 2 through 5 (all five floors) are currently being planned as a single acquisition, with phased construction. The approved acquisition strategy will utilize a design/build project delivery method, with performance based requirements. The objective is to realize cost savings with one prime construction contractor through the benefits of a true partnering environment by minimizing the learning curve on each wedge. The Pentagon Renovation's primary schedule risks are working around and moving tenants to accomplish construction. Thus the construction contractor's input during design will be instrumental in providing a truly constructable and coordinated solution.



*Aerial view of the Mall Terrace, which lies at the midpoint between Wedges 2 and 3.*

Construction will be phased, with completion scheduled one wedge at a time. This includes: moving tenants from Wedge 2 into Wedge 1, Wedge 3 into Wedge 2, etc.; installing temporary utilities needed to keep the other wedges operational; demolition/abatement; core & shell construction; tenant fit-out construction; and move in. The use of one construction contractor will help to identify and plan work in portions of other wedges, potentially resulting in schedule and budget improvements.

**III. Projects in Progress****Wedges 2-5 - Floors 1-5**

*The Metro Entrance and South Terrace facades meet at the center point of Wedge 5.*

The Wedge 2-5 team is currently developing the project's performance requirements to reflect the Program's "Back to Basics" goals. This effort will become part of the project "requirements package" which will be used to obtain construction contractor proposals. One of the challenges the team faces is to reduce first costs (construction cost) to meet the Renovation's "cap" cost, while attempting to minimize the life-cycle cost of operating the Pentagon in future years. Reducing first costs does not always provide an efficient and cost-effective solution for reducing future building operational expenses, which in the end, could increase the taxpayer's burden by increased energy or maintenance expenses. However, to meet the Pentagon Renovation's cap cost, the first cost reduction approach has become a controlling criteria.

The Wedge 2-5 acquisition approach will use two-phased design-build procurement procedures in accordance with FAR 36.3. Phase I is the Request for Qualifications leading to the establishment of a pool of contractors to compete in Phase II. Phase II is the Request for Proposals leading to contract award, currently planned for the 2nd quarter of Fiscal Year 2001. The start of actual construction for the first portion of the next renovation phase (Wedge 2) is directly tied to the completion of Wedge 1.

*Minimizing disruptions to the Secretarial offices along the Mall and River Terraces will pose unique challenges to the renovation team.*







### III. Projects in Progress

### Wedges 2-5 - Floors 1-5



#### MOVE-OUT

Wedge 2 tenants are scheduled to move into the renovated Wedge 1 in conjunction with the Wedge 1 tenant fit-out completion schedule. Temporary utilities and demolition/abatement will start immediately after the wedge is vacated.

#### Wedge 2-5 Highlights

- 4,000,000 gross square feet of building space
- 20,000 people occupy Wedges 2-5, requiring 20,000+ moves
- 5,000 tenants to be coordinated/relocated during each phase
- Communication connectivity required for relocated tenants
- Design-build project delivery method planned
- Temporary utilities required for each phase to maintain existing building
- Demolition/abatement removal:
  - 60 million pounds of debris
  - 12 million pounds of hazardous material
  - Goal of 70% material to be recycled
- New building elements:
  - energy saving building elements/materials
  - elevators/escalators
  - automated building control systems
  - thermal insulated and blast resistant windows
  - security upgrades
  - Building code and ADA compliance
- Relocation and build out for Defense Secretaries/Operation centers
- Relocation and planning for food service and retail building functions



*A view inside Wedge 1 where floor slabs have been removed to clear the way for new elevators. Eventually, each wedge will be gutted and cleared down to the bare column structure seen here.*